



SUBSTITUTE SEQUENCE LISTING

<110> Chateau, Michel  
Gonzalez, Benjamin  
Meynial-Salles, Isabelle  
Soucaille, Philippe Noel Paul  
Zink, Olivier

<120> Method for the Production of Evolved Microorganisms which Permit  
the Generation or Modification of Metabolic Pathways

<130> 34076/us/2 (456180-00005)

<140> US 10/546,139

<141> 2005-08-15

<150> PCT/FR2004/000354

<151> 2004-02-17

<150> FR0301924

<151> 2003-11-06

<150> FR00305768

<151> 2003-05-14

<150> FR00305769

<151> 2003-05-14

<150> FR00301924

<151> 2003-02-18

<160> 42

<170> PatentIn version 3.3

<210> 1

<211> 100

<212> DNA

<213> Artificial

<220>

<223> Synthetic

<400> 1

tacccccgac gcaagttctg cgccgcctgc accatgttcg ccagtgccgc gcggggtttct 60

ggccagccgc gcgttttcag catatgaata tcctccttag 100

<210> 2

<211> 100

<212> DNA

<213> Artificial

<220>

<223> Synthetic

<400> 2

tgacaatatt gaatcacacc ctcggtttcc ctcgcgttgg cctgcgtcgc gagctgaaaa 60

aagcgcaaga aagttattgg tgtaggctgg agctgcttcg 100

<210> 3

<211> 30  
<212> DNA  
<213> Artificial

<220>  
<223> Synthetic

<400> 3  
ggtttaagca gtatggtggg aagaagtcgc

30

<210> 4  
<211> 30  
<212> DNA  
<213> Artificial

<220>  
<223> Synthetic

<400> 4  
cccggggatg aataaacttg ccgccttccc

30

<210> 5  
<211> 1161  
<212> DNA  
<213> Escherichia coli

<400> 5  
atgacgcgta aacaggccac catcgcagtg cgtagcgggt taaatgacga cgaacagtat 60  
ggttgcgttg tcccaccgat ccattcttcc agcacctata actttaccgg atttaatgaa 120  
ccgcgcgcgc atgattactc gcgtcgcggc aaccacaacgc gcgatgtggt tcagcgtgcg 180  
ctggcagaac tggaagggtg tgctggtgca gtacttacta ataccggcat gtccgcgatt 240  
cacctggtaa cgaccgtctt ttgaaacct ggcgatctgc tggttgcgcc gcacgactgc 300  
tacggcggta gctatcgctt gttcgacagt ctggcgaaac gcggttgcta tcgcgtgttg 360  
tttgttgatc aaggcgatga acaggcatta cgggcagcgc tggcagaaaa acccaaactg 420  
gtactggtag aaagcccaag taatccattg ttacgcgtcg tggatattgc gaaaatctgc 480  
catctggcaa ggggaagtcgg ggcggtgagc gtggtggata acaccttctt aagcccggca 540  
ttacaaaatc cgctggcatt aggtgccgat ctggtgttgc attcatgcac gaaatatctg 600  
aacggctact cagacgtagt ggccggcggtg gtgattgcta aagaccggga cgttgtcact 660  
gaactggcct ggtgggcaaa caatattggc gtgacgggcg gcgcggttga cagctatctg 720  
ctgctacgtg ggttgcgaac gctggtgccg cgatatggagc tggcgcagcg caacgcgcag 780  
gcgattgtga aatacctgca aaccagccg ttggtgaaaa aactgtatca cccgtcgttg 840  
ccggaaaatc aggggcatga aattgccgcg cgccagcaaa aaggcttttg cgcaatgttg 900  
agttttgaac tggatggcga tgagcagacg ctgcgtcgtt tcctggggcg gctgtcgttg 960  
tttacgctgg cggaatcatt agggggagtg gaaagtttaa tctctcacgc cgcaaccatg 1020  
acacatgcag gcatggcacc agaagcgcgt gctgccgccg ggatctccga gacgctgctg 1080

cgatatctcca ccggtattga agatggcgaa gatttaattg ccgacctgga aaatggcttc 1140  
 cgggctgcaa acaaggggta a 1161

<210> 6  
 <211> 10  
 <212> PRT  
 <213> Escherichia coli

<400> 6

Met Glu Thr Thr His Arg Ala Arg Gly Leu  
 1 5 10

<210> 7  
 <211> 1161  
 <212> DNA  
 <213> Escherichia coli

<400> 7  
 atgacgcgta aacaggccac catcgcagtg cgtagcgggt taaatgacga cgaacagtat 60  
 ggttgcgttg tcccaccgat ccattcttcc agcacctata actttaccgg atttaatgaa 120  
 ccgcgcgcgc atgattactc gcgtcgcggc aacccaacgc gcgatgtggt tcagcgtgcg 180  
 ctggcagaac tggaagggtg tgctggtgca gtacttacta ataccggcat gtccgcgatt 240  
 cacctggtaa cgaccgtctt ttgaaacct ggcgatctgc tggttgcgcc gcacgactgc 300  
 tacggcggta gctatcgctt gttcgacagt ctggcgaaac gcggttgcta tcgcgtgttg 360  
 tttgttgatc aaggcgatga acaggcatta cgggcagcgc tggcagaaaa acccaaactg 420  
 gtactggtag aaagcccaag taatccattg ttacgcgtcg tggatattgc gaaaatctgc 480  
 catctggcaa gggaagtcgg ggcggtgagc gtggtggata acaccttctt aagcccggca 540  
 ttacaaaatc cgctggcatt aggtgccgat ctggtgttgct attcatgcac gaaatatctg 600  
 aacggctact cagacgtagt ggccggcggt gtgattgcta aagaccgga cgttgtcact 660  
 gaactggcct ggtgggcaaa caatattggc gtgacgggcg gcgcgtttga cagctatctg 720  
 ctgctacgtg ggttgcgaac gctggtgccg cgatatggagc tggcgcagcg caacgcgcag 780  
 gcgattgtga aatacctgca aaccagccg ttggtgaaaa aactgtatca cccgtcgttg 840  
 ccggaaaatc aggggcatga aattgccgcg cgccagcaaa aaggctttgg cgcaatgttg 900  
 agttttgaac tggatggcga tgagcagacg ctgcgtcggt tcctgggagg gctgtcgttg 960  
 ttacgctgg cggcatcatt agggggagtg gaaagtttaa tctctcacgc cgcaaccatg 1020  
 acacatgcag gcatggcacc agaagcgcggt gctgccgccg ggatctccga gacgctgctg 1080  
 cgatatctcca ccggtattga agatggcgaa gatttaattg ccgacctgga aaatggcttc 1140  
 cgggctgcaa acaaggggta a 1161

<210> 8  
 <211> 5  
 <212> PRT  
 <213> Escherichia coli

<400> 8

Met Glu Thr Thr His  
 1 5

<210> 9  
 <211> 30  
 <212> DNA  
 <213> Artificial

<220>  
 <223> Synthetic

<400> 9  
 ggtacagaaa ccagcaggct gaggatcagc 30

<210> 10  
 <211> 100  
 <212> DNA  
 <213> Artificial

<220>  
 <223> Synthetic

<400> 10  
 tatgcagctg acgacctttc gcccctgcct gcgcaatcac actcattttt accccttggt 60  
 tgcagcccgg aagccatttt caggcaccag agtaaacatt 100

<210> 11  
 <211> 30  
 <212> DNA  
 <213> Artificial

<220>  
 <223> Synthetic

<400> 11  
 cgtccgggac gccttgatcc cggacgcaac 30

<210> 12  
 <211> 32  
 <212> DNA  
 <213> Artificial

<220>  
 <223> Synthetic

<400> 12  
 gcggtttacgc agtaaaaaag tcaccagcac gc 32

<210> 13  
 <211> 72  
 <212> DNA

<213> Artificial

<220>

<223> Synthetic

<400> 13

gcgttttacgc agtaaaaaag tcaccagcac gcaagggtccc gctaaaatcg atcatatgaa 60

tatcctcctt ag 72

<210> 14

<211> 100

<212> DNA

<213> Artificial

<220>

<223> Synthetic

<400> 14

cggacaaaaa gcttgatact caactggtga atgcaggacg cagcaaaaaa tacactctcg 60

gcgcggtaaa tagcgtgatt tgtaggctgg agctgcttcg 100

<210> 15

<211> 100

<212> DNA

<213> Artificial

<220>

<223> Synthetic

<400> 15

tgttgcaatt ctttctcagt gaagagatcg gcaaacaatg cggtgcttaa ataacgctca 60

cccgatgatg gtagaataac catatgaata tcctccttag 100

<210> 16

<211> 100

<212> DNA

<213> Artificial

<220>

<223> Synthetic

<400> 16

agtaagattt ttgaagataa ctcgctgact atcggtcaca cgccgctggt tcgcctgaat 60

cgcacggtga acggacgcat tgtaggctgg agctgcttcg 100

<210> 17

<211> 100

<212> DNA

<213> Artificial

<220>

<223> Synthetic

<400> 17

cccgccccct ggctaaaatg ctcttcccca aacaccccg tagaaaggta gcgatcgcca 60

cgatcgcaga tgatcgccac catatgaata tcctccttag 100

<210> 18  
<211> 100  
<212> DNA  
<213> Artificial

<220>  
<223> Synthetic

<400> 18  
agtacattag aacaaacaat aggcaatacg cctctggtga agttgcagcg aatggggccg 60  
gataacggca gtgaagtgtg tgtaggctgg agctgcttcg 100

<210> 19  
<211> 30  
<212> DNA  
<213> Artificial

<220>  
<223> Synthetic

<400> 19  
ttttaacag acgcgacgca cgaagagcgc 30

<210> 20  
<211> 30  
<212> DNA  
<213> Artificial

<220>  
<223> Synthetic

<400> 20  
ggcgcgacgg cgatgtgggt cgattgctat 30

<210> 21  
<211> 30  
<212> DNA  
<213> Artificial

<220>  
<223> Synthetic

<400> 21  
ggggtgacgg tcaggactca ccaatacttc 30

<210> 22  
<211> 30  
<212> DNA  
<213> Artificial

<220>  
<223> Synthetic

<400> 22  
gcgcgcatcg ctggccgctg ggctacacac 30

<210> 23  
 <211> 74  
 <212> DNA  
 <213> Artificial  
  
 <220>  
 <223> Synthetic  
  
 <400> 23  
 ttagagctgt tgacaattaa tcatccggt cgtataatgt gtggaataaa aactcttaag 60  
 gacctcaaaa tgcc 74

<210> 24  
 <211> 30  
 <212> DNA  
 <213> Artificial  
  
 <220>  
 <223> Synthetic  
  
 <400> 24  
 gctctgtcta gtctagtttg cattctcacg 30

<210> 25  
 <211> 100  
 <212> DNA  
 <213> Artificial  
  
 <220>  
 <223> Synthetic  
  
 <400> 25  
 cccagaatct cttttgtttc ccgatggaac aaaattttca gcgtgcccac gttcatgccg 60  
 acgatttggtg cgcgtgccag tgtaggctgg agctgcttcg 100

<210> 26  
 <211> 100  
 <212> DNA  
 <213> Artificial  
  
 <220>  
 <223> Synthetic  
  
 <400> 26  
 ggtgcgcgcg tcgcagttat cgagcgttat caaaatgttg gcggcggttg caccactgg 60  
 ggcaccatcc cgtcgaaagc catatgaata tcctccttag 100

<210> 27  
 <211> 30  
 <212> DNA  
 <213> Artificial  
  
 <220>  
 <223> Synthetic  
  
 <400> 27

gcgggatcac tttactgcca gcgctggctg 30

<210> 28  
<211> 30  
<212> DNA  
<213> Artificial

<220>  
<223> Synthetic

<400> 28  
ggccgctcag gatatagcca gataaatgac 30

<210> 29  
<211> 100  
<212> DNA  
<213> Artificial

<220>  
<223> Synthetic

<400> 29  
gcgccacgct ttatagcggg taatcagacc attggctcag ctatcgtggc tgctgatttc 60  
tttatcatct ttcagctctg catatgaata tcctccttag 100

<210> 30  
<211> 100  
<212> DNA  
<213> Artificial

<220>  
<223> Synthetic

<400> 30  
ccaacgcaga ccgctgcctg gcaggcacta cagaaacact tcgatgaaat gaaagacgtt 60  
acgatcgccg atctttttgc tgtaggctgg agctgcttcg 100

<210> 31  
<211> 30  
<212> DNA  
<213> Artificial

<220>  
<223> Synthetic

<400> 31  
cggtatgatt tccgttaaata tacagacaag 30

<210> 32  
<211> 30  
<212> DNA  
<213> Artificial

<220>  
<223> Synthetic

<400> 32



gcggggcggt tgtcaacgat ggggtcatgc 30

<210> 33  
<211> 100  
<212> DNA  
<213> Artificial

<220>  
<223> Synthetic

<400> 33  
ttcgcgcagt ccagccagtc acctttgaac ggacgcttca tgttttcgat agcgtcgatg 60  
atgtcgtggt gaaccagctg catatgaata tcctccttag 100

<210> 34  
<211> 100  
<212> DNA  
<213> Artificial

<220>  
<223> Synthetic

<400> 34  
ggtgtgttga caagcggcgg tgatgcgcca ggcataaacg ccgcaattcg cgggggttgtt 60  
cgttctgcgc tgacagaagg tgtaggctgg agctgcttcg 100

<210> 35  
<211> 27  
<212> DNA  
<213> Artificial

<220>  
<223> Synthetic

<400> 35  
ccctacgccc cacttggttca tcgcccg 27

<210> 36  
<211> 27  
<212> DNA  
<213> Artificial

<220>  
<223> Synthetic

<400> 36  
cgcacgcggc agtcagggcc gacccgc 27

<210> 37  
<211> 100  
<212> DNA  
<213> Artificial

<220>  
<223> Synthetic

<400> 37

gcgggaaagg taagcgtaaa ttttttgcgt atcgatcatgg gagcacagac gtgttccctg 60  
attgagtgtg gctgcactcc catatgaata tcctccttag 100

<210> 38  
<211> 99  
<212> DNA  
<213> Artificial

<220>  
<223> Synthetic

<400> 38  
gcgcccctctc tcgatagcgc aacaattacc ccgcaaattt atcccgaagg aaaactgcgc 60  
tgtaccgcac cggtgttcgt gtaggctgga gctgcttcg 99

<210> 39  
<211> 26  
<212> DNA  
<213> Artificial

<220>  
<223> Synthetic

<400> 39  
gccggttgca ctttggttaa gccccg 26

<210> 40  
<211> 30  
<212> DNA  
<213> Artificial

<220>  
<223> Synthetic

<400> 40  
tggcaggatc atccatgaca gtaaaaacgg 30

<210> 41  
<211> 29  
<212> DNA  
<213> Artificial

<220>  
<223> Synthetic

<400> 41  
cgtgaattct tattcatcaa ttctaataa 29

<210> 42  
<211> 32  
<212> DNA  
<213> Artificial

<220>  
<223> Synthetic

<400> 42

acgttcatga gatacgttat cataacagga ac

32